

CHAPTER 13

LINGUISTICS AND ORAL TRADITION IN THE PERIOD BETWEEN THE DECLINE OF HARAPPAN CULTURE AND THE RISE OF MAGADHAN CULTURE

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1.0 PRELIMINARIES

Study of history of science depends on what is thought as worthy of being called exact science. Obviously the understanding of what constitutes the subject-matter of exact science changes with history. In contemporary world, a rigid view of the boundary of natural and social sciences has prevented historians of science from giving attention to linguistic researches of the past.¹ Adequate grasp of the exact sciences in ancient India has suffered most because of this. This is so because of the unique and distinct position that the study of human language occupied in ancient India. Linguistics truly can be called a queen of sciences in ancient India. In this chapter we will give contextual outline of the development of linguistics and at the same time seek historical reasons for the same.

1.1 A HISTORICAL PARADOX

History of Indian subcontinent poses a peculiar problem in the period between the decline of Harappan Culture (c. 1500 B.C.) and sprouting of Magadhan Culture (c. 500 B.C.). This period witnessed general decline in material culture and technology but at the same time saw maturing of human expression in the composition of poetic hymns as well as in the formulation of cosmogonic ideas as is recorded in the Vedas.

1. An only comprehensive work on history of science in India, Bose et al (1971), does not even mention linguistics, except on pp. 25-26, where again importance of linguistics is brutally minimised by reducing the worth of its source materials to merely 'a veritable source of information of many scientific and technical subjects' (p. 26). And these subjects are everything other than linguistics.

The beginning of this period is marked by the decline of urban centres, degeneration of Harappan technology and artefacts and disappearance of Harappan script. Only towards the end of this period that the regeneration of urban culture begins and also Brahmi and Kharosthi scripts come into being.² In our view the most striking fact is that this period is characterised by the absence of writing and urbanity and at the same time much of the corpus of Vedic literature was composed and originally redacted in this period.³ This is a historical paradox and calls for explanation.

Unlike Harappan script, which disappeared in this period, contemporaneous hieroglyphic script of Egypt (c. 2700 BC—) or cuneiform of Sumer (c. 2500 BC—) or ideograms of China (c. 2500 BC—) got strengthened through this period. Strengthening and refinement of writing played an indispensable role in stabilisation, preservation and standardisation of language. Egyptian writings on papyrus (2700 BC—O AD) and Babylonian writings on clay tablets (2500 BC—O AD) stand in testimony. Writing in these cultures helped the fixation of language and thus long texts composed in the period could

2. Archaeological evidences point abundantly towards absence of writing on non-perishable material. Asokan inscriptions (3rd cent. B.C.) all around the country in Brahmi and Kharosthi scripts are the earliest evidence of revival of writing. Though few cryptic epigraphs in Brahmi have been dated earlier to Asokan inscriptions, even then they do not in any case go back to before 5th cent. B.C.
3. Literature which is composed in this period is vast and that too in diverse literary styles. The four Vedas (Rk, Yajus, Saman and Atharva) were composed in this period. *Rgveda* is the most archaic composition and came into being in the early part of the period. Much of Brahmana, Aranyaka and Srauta classes of literature were composed in the later part of the period. Some of Pratisakhyā and Sikṣa classes of literature are also composed in this period. Much of the literature in the period adopts metric and poetic style but prose literature was also composed (*Yajurveda*, *Satapatha Brahmana* and *Nirukta* of Yaska). Even Sutra style literature (*Rkpṛatisakhyā*) is born in the end of the period. Later Jaina and Buddhist literature also records non-Vedic aspects of oral compositions in the period.

be preserved. In fact, the possibility of composition of long texts itself is generally related to the invention of writing and its further refinement. Unwritten language is bound to fluctuate rapidly, thus making preservation of long composition virtually impossible. This absence of long texts from the past of most of the cultures in the world can be understood in the context of non-fixation and non-standardisation of language. Sheer cramming can never fix a long text in the way writing can. If this is really the case, then, how was the large corpus of Vedic literature composed and preserved in the non-literate oral phase of history of civilisation in Indian subcontinent? What played the role of fixation of language in oral phase if not writing?

1.2 WAY OUT OF THE PARADOX

This interesting query is resolved only when we pay attention to the development of linguistics in ancient India. Early development in linguistics is a unique feature in the history of exact science inasmuch as the absence of writing is a unique feature in history of culture in Indian subcontinent in the period c. 1500 BC—c. 500 BC. It is precisely the need to compose and preserve long texts in the absence of writing that led to the developments in linguistics quite unparalleled in the contemporaneous world. Not only long poetic and metrical compositions were meticulously retained through the period using knowledge of phonetics but also prose compositions and some Sutra style formulaic compositions were preserved. Fixation of language was achieved in a different way through the developments in the exact science of phonetics, etymology, and grammar in the oral phase. This thrust of exact science towards linguistics not only helped create oral devices which made possible uncontaminated retention of long compositions but also led to the creation of abstract interest in the phenomena of language, triggering later, sophisticated theoretical developments in grammar which culminated in Panini's (600 BC—400 BC) grammar of Sanskrit called *Aṣṭadhyayi*, a fine piece of reasoning available to us from the ancient world. Other products of linguistic research which are anterior to Panini are the *Nirukta* of Yaska (c. 700 BC—c. 500 BC), a book of etymology and semantics, and *Rk-*

pratisakhya of Saunaka (c. 600 BC—c. 500 BC), a book of phonetics. In this chapter we shall describe and analyse multi-faceted developments in the exact science of language in the non-literate oral phase of Indian history in the context of a successful attempt to fix and standardise long compositions orally.

2.0 NON-LITERATE ORAL PHASE AND FIXATION OF LONG COMPOSITIONS

It needs to be emphasised that the development of exact science of language in Indian subcontinent is vitally related to the unique feature of the history of Indian subcontinent. From contemporary archaeological evidence it can be minimally concluded that writing on non-perishable material did not exist in this phase and it existed before and after this phase. Alberuni in the 10th century AD had recorded a legend, prevalent in his time, that retained memory of occurrence of such a phase in Indian history when knowledge of writing was relegated to the background : "As to the writing or alphabet of the Hindus, we have already mentioned that it once had been lost and forgotten ; that nobody cared for it, and that in consequence people became illiterate, sunken into gross ignorance, and entirely estranged from science. But then Vyasa, the son of Parasara, rediscovered their alphabet of fifty letters by an inspiration of God".⁴ He was referring to the traditional belief that legendary Vyasa was responsible for the collection of Veda-s and the composition of *Mahabharata* and the eighteen Purana-s. Whatever may be exegetical context of the legend the fact remains that Vyasa was believed to have revived writing which had become obscure and fallen out of use in some phase of history. At least the memory of occurrence of such a phase was retained even till the time of Alberuni.

In the light of epigraphical and archaeological evidence the legend seems to contain a reified version of the historical fact of the occurrence of the Sruti phase, though, as we would demonstrate in this chapter, the conjecture that 'people became

4. Pp. 171-172, *Alberuni's India* ed. and translated with notes and indices by Edward C. Sachau. New Delhi : Munshiram Manoharlal Reprint 1983.

entirely estranged from science' is not quite tenable. Besides, the introduction of Brahmi and Kharosthi scripts was not merely the rediscovery of hitherto lost alphabets.

That there existed a legend, embodying a reified version of Sruti phase, is of enormous significance. It implies continuity in the complex historical change. Even if the knowledge of Harappan script did not survive through the non-literate phase, as is indicated by current archaeological information, at least the memory of the existence of writing in Harappan phase seems to have survived.

This opens the difficult question regarding the nature of interface between the Harappan writing and the composition or fixing of a long text like *Rgveda* or even some early portion of it or even some long Harappan composition. This is a doubly difficult problem. On the one hand, it is connected with the issue of the spectacular decline of Harappa, a change which is itself yet to be fully understood, and on the other hand, it is connected with the nature of Harappan script, a script which has offered insurmountable resistance for its decipherment. Despite these difficulties and the complexity of historical process which is involved it is possible to draw some conclusion regarding the relation between Harappan script and long texts.

2.1. CONJECTURE ON THE INABILITY OF HARAPPAN SCRIPT TO FIX LONG COMPOSITION

Script was one cultural feature which must have played extensive and essential role in the Harappan civilisation that had a temporal spread of about a millennium. Large number of inscribed seals (about 2500) are found made of steatite, clay, faience, ivory and little copper plates. One feature of the graphs in the inscription is that they do not seem to change significantly over the long span of about a millennium. This constancy is significant and implies that the function of the script was settled and did not require much modification and change in the script.

Another noticeable feature of the Harappan script, as it survives for us, was the brevity or the cryptic nature of text on individual inscription. The average length of the text being just 5 graphemes (signs), the total number of texts is very large

(2906 texts have been compiled by Mahadevan) implying that the sample of extant inscriptions can authentically represent Harappan use of script, the maximum length of a text or rather the longest text being only 26 graphemes long in three lines. Maximum number of lines is 7 in a text if all sides of inscribed objects are counted as one text and maximum number of lines on one side is three only. The length of a line of text varies from one grapheme to 14 graphemes, the longest line of 14 graphemes occurs in two identical texts. There is a notable absence of a continuous text, not to speak of a long one.

The cryptic nature of the Harappan text stands out as a striking and unique feature of the script and makes it different from any known script that had a spread over such a vast civilisation. This hints at the possibility of structural constraint implicit in the script itself which could have made it incapable of representing continuous long text. This seems more so given the fact that in the entire life span of the script spread over a millenium the graphemes (signs) did not undergo any noticeable change. Our positing of the incapability does not diminish the pervasive use value of the script in the Harappan civilisation and the extensive role it played therein. It merely indicates possibility, supported by two unique features of the script, that the domain of applicability could have excluded representation of long continuous composition. In other words, the semantic elaboration and fine differentiation that continuous long compositions demand could not be tamed by the Harappan script which only fixed cryptic texts.

Our conjecture is that possibly there was some formal constraint dictated by the nature of Harappan script which made it incapable of adopting itself to the need of continuous long compositions. Though the unknown nature and function of the yet undeciphered⁵ Harappan script stands as a challenging prob-

5. Many decipherment attempts and claims have been made. Mostly attempts are based on comparison with other known ancient scripts and some assumed context of meanings signified by the text. There are also attempts based on statistical cogency (coherence) of symbols. But none of the attempts still today has been able to give consistent and complete account of Harappan script.

lem our observation is independent of it. It is also independent of whichever natural language or symbolic system the script represented. According to our conjecture, even if Harappan script was coextensive (e.g. in late Harappan phase) with the composition of the first kernel of *Rgveda* it would have been incapable of fixing long composition like the *Rgveda*. Notice that this observation is independent of the complex issue of relation of Indo-Aryan language with Harappan culture and can be held without assuming or positing details of the complex interface of Harappan culture and Vedic compositions. Vedic hymns are long continuous compositions which are semantically elaborate and linguistically rich. The unchanging Harappan script would have been structurally redundant to fix the Vedic composition. This would mean eventual redundancy of the script for performance of cultural role (different from the Harappan) demanded by the long Vedic composition. Hence even if the knowledge of script survived till the time when long compositions became culturally significant it would have had no role to play. Thus only the memory of script survived. Besides, the cultural significance of the auditory aspect of hymn composition and recitation would have meant a thrust towards orally fixing the long continuous composition like the *Rgveda*. The knowledge of the redundancy of the earlier script for this purpose would have added towards this thrust if our conjecture about the nature of Harappan script is true.

2.2. BEGINNING OF LONG VEDIC COMPOSITIONS AND ORAL APPROACH TO FIX THEM

The central corpus of Vedic composition, the *Rgveda*, is supposed to have been composed and compiled between about 1500 BC and 1000 BC, a period which is somewhat contemporaneous and immediately follows the decline of Harappan culture. This period is an early part of Sruti phase of Indian history. In fact the entire corpus of Vedic literature is heterogeneous⁶ which includes diverse kind of literature com-

6. The corpus of Vedic literature is vast as it comes to us today. Traditional stratification of this corpus is the 4 Vedas : *Rk*, *Yajus*, *Sama* and *Atharva*, the numerous *Brahmana-s*, *Ara-*

posed in Sanskrit over a long period. The *Rgveda*, which is a compilation of hymns, is undoubtedly the earliest, archaic and pivotal body of Vedic literature.

The hymns which are compiled in the *Rgveda* were composed individually or in the groups and at different occasions. What prompted the compilation of these hymns is an open question. The compilation perhaps followed the decline of Harappa and hence must have been done orally. The oral compilation of Rgvedic hymns was called *Arsi Samhita*.⁷ *Shamita*,⁸ though in general means 'put together', 'collection' or union, was used in a specific connotation for designating the collection of hymns. The recitation and incantation of *Arsi Samhita* was called *samhita-patha*. More specifically, the con-

yaka-s, *Srautasutras* and *Grhyasutras* which are associated to different Vedas and some compilations out of them called the Upanisad-s. Further the later Vedic literature is classified in terms of six Vedanga-s : Vyakarana, Siksa, Nirukta, Kalpa, Chandas and Jyotisa. In the period of concern much of the literature described above was composed. Legendary Rsi Krsna Dvaipayana is supposed to have divided the original Veda into 4 portions according to their ritual significance. Interestingly *Atharvaveda* compiles that portion of *mantra-s* which is not related to Yajna or rituals. In this corpus *Rgveda* is regarded as the most archaic, *Yajurveda* being the creation of later period and also with different thematic inclination. Similarly *Atharvaveda* is a still late compilation with altogether different thematic inclination not connected with rituals.

7. The term *samhita* is used in *Rgveda* [1.168.6] and *Taittriya Samhita* (1.5.6.2) in the sense of 'put together', 'collection' or 'union'. Later literature also extensively used this term with general connotation of put together but it acquires a technical connotation of 'joining' and 'union' of sounds, words etc. *Arsi Samhita* means compilations of legendary Rsi-s and is a term which designated *Rgveda* [see Uvata's commentary on *Rkpratisakhyā* 2.2].
8. Other technical connotations of the term *samhita* are given in *Taittriya Pratisakhyā* [24-1-4] in terms of Pada-Samhita, Varna-Samhita, Aksara-Samhita ad Anga-Samhita. These are unions of words, syllables, letters and numbers respectively. In *Vajasaneyi Pratisakhyā* [1-157-158] even collection of Pada-s has been referred to as Samhita. All these connotations imply a unified meaning of 'union' or 'collection'.

tinuous recitation of the compilation of hymns was called *samhita-patha*.⁹ The practice of continuous recitation¹⁰ was perhaps called for because of the need of incantation as well as because of convenience in memorising. In non-literate oral tradition *samhita-patha* was memorised and was handed down from generation to generation orally.

Memorising the *Rgveda Samhita* was not an easy task, it being a very long compilation running into 1,53,826 number of words.¹¹ Such a long composition if unwritten would change drastically within a dozen generations. Even if the whole composition is memorised and orally taught to the next generation, within a couple of centuries, the pronunciation, the order of hymns and even the structure would have changed. This did not happen and a meticulously fixed text of the *Rgveda Samhita* was transmitted through many many generations. Oral transmission was meticulous enough to the extent of preserving each and every syllable as if the syllables have been imprinted on immutable rocks. This gets established when late medieval manuscripts of the *Rgveda Samhita* are compared with the orally transmitted text, say, the one, among many, which is retained to this date by the Nambudri Brahmins of Kerala. The fixing of long texts in an oral milieu in the absence of writing definitely requires more than the mere skill of memorising. It requires designing of safeguards against possible contamination of all kinds. Besides developing and cultivating skill of memorising, fixing of text requires method of fixing sounds so that sounds do not get altered or changed with time. This can only be done if sounds are somehow objectively defined,

9. *Samhita-patha* was also called *Nirbhija Samhita* which means compilation without ends (or arms) or simply continuous recitable compilation. *Nirbhija Samhita* is used first in *Aitareya Aranyaka* [3-1-3].
10. See Appendix section A 3 for the example of continuous recitation. Not only poetic and metrical hymns were recited orally but also prose compositions like *Yajurveda-samhita*. *Pratisakhy* of the *Yajurveda* called *Vajasaneyi Pratisakhy* [1.158] says that *samhita* is union of syllables which can be said in one breath. That is, in *Samhita-patha* of prose discontinuity or pause for taking breath is accepted only.
11. p. 14 Introduction of V.K. Varma to *Rkpratisakhy*.

say, with help of detailed pronunciation procedures. In fact, a whole body of knowledge of the physiology of sound production was developed in Sruti phase to safeguard against phonemic slippage and contamination. Similarly, fixing of long text requires fixing of word-order of the hymns. This requires designing method that can check whether word-order has been disturbed or not. The counter-checking methods should be independent of mere memorising though no doubt they are designed primarily to supplement memorising. This was indeed a difficult task as it required invention and development of techniques of fixed representation which is non-graphic and yet immutable enough. Like invention of fixing long texts graphically (through writing ideograms or alphabets) requires graphic formalism, the invention of fixing long texts orally requires phonetic formalism. Such a formalism indeed was developed in the Sruti phase when a genuine need was felt to fix long texts of *Samhita*-s without the help of writing. It was in this context that the inquiry into language began in ancient India in the period which archaeologists call 'dark age',—the period between the decline of Harappan culture and the rise of Magadhan culture.

Orally fixing texts of the *Rgveda Samhita* and other *Samhita*-s was a unique achievement. Even till today right from about 1000 BC there exists the tradition of orally transmitting the text of *Samhita* without taking recourse to writing.¹² Tho-

12. J.F. Staal. *Nambudri Veda Recitation*. Hague : Mouton and Co., 1961 deals with the Veda recitation tradition of the Numbudri Brahmins of Kerala. Some 35% of Numbudri Brahmins can recite *Rgveda*, 50% *Yajurveda* and about 1/8% *Samaveda* according to J.F. Staal. Various recensions of oral transmission of *Samhita*-s of Veda are dealt in the text like *Caranavyuha* and its commentaries.

Nambudries of Kerala have two *Rgveda* schools, one at Tirunavaji (near Kottakkal) and other at Trissivapevuv (dist. Trichur). Third school of little importance is in Kurumbrahad Taluk. *Atharveveda Samhita* in oral form perhaps exists only in a few villages of Gujarat and a few villages of Orissa. *Samaveda Samhita* can be found in Tamil Nadu. The Kau-thuma Sakha is widespread but the other Sakha is near extinct. Taittiriya Sakha of *Krsna Yajurveda* can be found near

ugh today writing is available, still some archaic tradition lingers on and stands as a living testimony to the possibility of fixing long texts orally.

2.3. INSTITUTIONALISATION OF PRIESTLY COMMUNES FOR THE PURPOSE

At the time when writing was absent the process of compilation and retention was institutionalised. It was in the numerous priestly communes, known as *sakha-s*, that the *samhita-patha* was kept alive, modified and transmitted. At any point of time there were many *sakha-s*. According to the grammarian Patanjali (c. 200 BC), there were no less than one thousand one hundred and thirty *sakha-s*.¹³ Institution of *sakha-s* was the nucleus where the fixation of *samhita-patha* was achieved. With time *sakha-s* got bifurcated into *carana-s* and lineages of various *sakha-s* even got merged. Today only *Samhita-s* of thirteen *sakha-s* are available, out of which two are incomplete.¹⁴ The difference between the *Samhita-s* of various *sakha-s* were in terms of pronunciation, and minor differences in the contents of the hymns. The major difference in *sakha-s* was in terms of other literature associated with the *sakha-s* like *Brahmana-s*, *Aranyaka-s*, *Upanisad-s*, *Srautasutra-s* etc. For example, the Kanya *sakha* of *Sukla Yajurveda Samhita* has one hundred and eleven *mantra-s* more than the *Samhita* of Madhyandina *sakha*. *Satapatha Brahmana* of Kanya *sakha*

Madras and Rajamahendravaram (Rajahmundry) in Andhra Pradesh. *Sukla Yajurveda* can be found in Karnataka region. Madhyandina *Sakha* exists near Mysore and Kanas in a few villages of Tiruchurapalli and Tancavur district of Tamil Nadu. See. V. Raghavan, 'Present Position of Vedic Chanting and its Future'. Bulletin of the Institute of Traditional Culture, pp. 48-69, Madras 1957.

13. The *Vyakarana-Mahabhasya* of Patanjali ed. by F. Kielhorn revised by K.V. Abhyankar Vol. 1 1962 Poona. According to Patanjali (in 200 B.C.) there were 21 *Sakhas* of *Rgveda Samhita*; 101 of *Yajurveda Samhita*; 1000 of *Samaveda Samhita*; and 9 of *Atharvaveda Samhita*.
14. Today *Samhita-s* of thirteen *Sakhas* have been identified and published.

has 104 chapters, but of Madhyandina *sakha* has only 100.¹⁵ Such differences are the legacy from the complex inter-institutional divergences and convergences in the non-literate phase of Indian history. It was in that phase of history that institutions of *sakha*-s came up and fixed the texts of *Samhita*-s orally. We have put this phase of history and the unique phenomena of orally fixing long texts and the institutionalisation of the same through *sakha*-s in the background of the institutionalisation of the same through *sakha*-s in the background of the incapability of Harappan script because of its cryptic nature.

3.0. STANDARDISATION AND FIXING OF VEDIC TEXTS AND THE EXACT SCIENCE OF LANGUAGE

It was in the priestly communes,¹⁶ that the compilation of hymns attained final standardisation. The institution of priestly communes must have precipitated when the socio-cultural need to rigorously standardise or make uniform the collection of hymns was felt. The overall process of standardisation of the *Rgveda Samhita* must have been a long drawn process beginning somewhere in the early phase of Sruti period. But the formation of *sakha*-s must have taken place in the middle of Sruti phase. The major contribution of the institution of *sakha* was not merely final standardisation but orally fixing the standardised text for uncontaminated transmission through the ages. Actual process of final standardisation of compiled hymns and orally fixing the text must have gone hand in hand as

15. See p. 5-6 of Introduction of V.K. Varma in *Vajasaneyi Pratisakhya*.

16. To call *Sakha*-s priestly communes needs clarification. *Sakha*-s were the settlements of groups of people dedicated to the cause of standardisation and fixation of *Rgveda Samhita*. Here was a group of people or community tied together with a bond of determinate cause. It is in that sense that such settlement can be called commune. As the hymns were associated with the rituals we have called it priestly communes. These priestly communes in all likelihood would not be economically self-sufficient in the nomadic milieu of the time; hence the term commune might create some misunderstanding as commune is supposed to be economically self-sufficient. Priestly communes would have been partially supported by the surplus appropriated by the rulers.

the two were concurrent functions of the institution of *sakha-s*. The historical complexity of the process is evident from the formation of various *sakha-s* of *Rksamhita* at an early time and later formation of numerous *upasakha-s* and their further partitioning into *carana-s*.¹⁷

The significance of the institution of *sakha-s* was that the well-knit community dedicated to the sole task of fixing the standardised *Rksamhita* had come into being. The continuity of this community through the ages was an important prerequisite for orally fixing the *Samhita*. Orally fixing the text, as we had remarked earlier, involved more than sheer cramming, it involved critical and creative investigation into various facets of language and it involved invention of oral devices which were not just an aid to memory but also ensured control over the natural process of contamination. This indeed was a much complex task compared to fixing of text by writing it down. Non-availability of appropriate script had left little choice but to explore ways of orally fixing the text. Sustained exploration in this direction stirred multifaceted investigations into various aspects of the phenomena of language compared to which invention and refinement of script did not involve much sustained effort. It is only a stable institution of *sakha*, with the community dedicated to the task of orally preserving the *Samhita* that could have made possible the success of such a momentous task.

3.1. PROBLEM OF STRUCTURISATION OF RGVEDA : ORIGIN OF INDICES, CONCORDANCES AND LEXICONS

Since *Rgveda* is a long text cramming without understanding the whole structure of the text would be extremely difficult. Even for standardisation explicit formulation of the structure of the whole text is a must. In fact, the first requirement for fixing the text orally is to clearly formulate and understand the

17. Out of 21 *Sakha-s* which grammarian Patanjali had recorded the following five were considerably significant—(1) *Sakaia*, (2) *Bas-kala*, (3) *Asvalayana*, (4) *Sankhayana* and (5) *Mandukayana*. Though the *Samhita-s* of only *Sakala* and *Sankhayana* are available today but some of the other literature associated with the *Veda* like *Brahmana*, *Aranyaka*, *Grhyasutra* etc. of other *Sakha-s* are available today.

overall structure of the text. This is essential for easy reference and arrangement of the memorised text. Also explicit structurisation would have helped fix the order of sections of hymns in the text. Such a structure of *Samhita* could have been formulated, say, in terms of ordering the major themes covered by hymns or ordering in accordance with the deities addressed by the hymns or ordering in accordance with the purpose for which incantations of hymns is suggested or even ordering in accordance with the lineages which were responsible for composing the hymns. Indices of these kinds were necessary to understand the structure of text as a whole. Structurisation of *Samhita* was a complex historical process and discovering or imposing some order was not an easy affair. Neat theme-wise, deity-wise, purpose-wise or lineage-wise order did not exist in the *Rksamhita*. Still concordances could be made. Such concordances and indices were indeed orally prepared and were called *Anukramani-s*.¹⁸ This was a beginning of dictionaries (lexicons), concordances and indices in the antiquity of Indian history. To enhance understanding even the list of important words in *Samhita* or lexicons were prepared and were called *Nighantu*.¹⁹ But the *Anukramani-s* were themselves a fairly long texts and were again memorised because they could not have been written. Though the various indices of the *Rksamhita* would have helped fix the order of the text partially, they could not have made easy the understanding of the structure of text as a whole. These indices could not have made structurisation explicit as the

18. Various *anukramani-s* from the Sruti phase have been referred to in the literature. The most important one related to *Rgveda Samhita* is Katyayana's *Rgveda Sarvanukramani*. *Brahaddevata* is another text which is a kind of encyclopaedia of deities etc. There is concordance which gives list of metres, this is Venkatamadhava's *Chandonukramani*.
19. *Nighantu-s* are very archaic list of important words. The great Indian book of etymology, the *Nirukta* of Yaska is a commentary on one of these *Nighantu-s*. The lists which are inherited from the Sruti phase are many indeed. There were lists of roots of words called *Dhatupatha*. The list of technical grammatical terms was called *Ganapatha* etc. But the most archaic lists are of course *Nighantu-s*. The tradition of *Nighantu-s* continued well into modern times.

structurisation should be brief and clear ; on the contrary, the indices besides being long and untidy could not have been exhaustive and neat. In fact, no single criterion could be employed to give an exhaustive and neat index which could have helped fix the order of hymns in the *Samhita*. This meant theorising on the structure was a difficult problem. In fact, an important difference among the various *sakha*-s was on the issue of structuring of *Rksamhita*.

3.2. THEORY OF METRES DEVELOPED TO ARTICULATE STRUCTURE OF RKSAMHITA

Rgvedic hymns were poetic compositions having metrical form and hence were memorised in the rhythmic mode. The metrical nature of the hymns must have made the task of memorising easy. In fact the phenomenon of metrical memorising and incantations was so imposing culturally that the grammarian Panini referred to the Veda and the Vedic language as *chandas*,²⁰ which he distinguished from the everyday language, *laukika*. Though the term *chandas* at a time prior to Panini, had acquired a technical meaning of poetic metre²¹ but through its association with Veda its derivative term *chandasu* was, in the later periods, even used in the sense of archaic.²² The rhythmic utterance of hymns was such a unique and imposing feature that the derivation from the term for poetic metre itself came to signify Veda.²³

20. Panini iv. 3.71. Etymologically the word comes from the root *chand* or *chad* which means 'to cover'. *Satapatha Brahmana* 8.5.2 gives this etymology. Also *Nirukta* 7.12 gives similar etymology.
21. 'Chandasika' meant one who is familiar with the Veda and 'Chandasiya' meant one who is familiar with the metrical science. [Srutibodha 19]. See Monier Williams, *Sanskrit English Dictionary*, p. 404-405. The two senses of Veda and metre were amalgamated. Later a famous book on poetic metres by Pingala, was called *Chandah Sastra*.
22. *Sarvadarsana Samgraha* vi. 11. See also Williams 405.
23. This is not to say that ancient Indian metrical theory did not bother about metres of secular poetry. Half of Pingala's (c. 200 B.C.) *Chandhasutra* deals with *laukika chandah* (secular metre) and the other half deals with *vaidika chandah* (metres in Veda).

As we had remarked earlier the metrical aspect was central to the memorising and incantation of *Samhita*. Study of the metrical aspect would have helped in the classification of hymns in metres. Ordering of the metre employed would have also helped fix the order of hymns in the *Samhita*. The study of metrical aspect of hymns in fact played the most important role in fixing the order of hymns, though of course with the help of additional criteria of deities (*devata*) addressed by hymns and *rsi* families who supposedly composed or initially compiled the section of hymns.²⁴ Metric aspect of poetic composition changes with history and varies with cultural geography. Currency of metre in poetic style of any culture at any time is related to the practice of poetic composition and hence it changes with time and place. To determine the metre of some poetic composition is a difficult problem. *Rgveda Samhita* being a repository of hymns compiled from numerous traditions the problem of determining metre was indeed complex. In the middle of Sruti phase concept of syllable quantity²⁵ (time taken to pronounce a syllable and relation of its

Later *Prakrata Pingala* deals extensively with metres of compositions in various languages different from Sanskrit. The point being argued here is that the term *chandas* was an archaic signifier of Vedic language because metric and rhythmic recitation was uniquely and intensely associated with memorising and ritual performance of *Samhitapatha*.

24. For example the *mantra* in the Appendix belongs to a section of the Tenth book of *Rgveda*. This section has 23 *mantra-s* and is composed in Anustubh metre (has 32 syllables in 4 lines or *pada-s*). And the section is in praise of *Osadhayah* (herbs and medicine) and belongs to the lineage of Atharvano Bhisag. Not every section or *Sukta* as it is called is composed in one type of metre, nor every section is devoted to the praise of same deity, nor is every section composed or compiled by one lineage. For example 92 *Sukta* or section of first book has 18 *mantras* 1-4 are in Jagati metre, 5-12 are in Tristubh metres and 13-18 are in Usnik metre. 1-15 *mantras* are in praise of *Usas* (morning) and 16-18 are in praise of *Asvins*.
25. Notion of syllable quantity is outlined in *Rkpratisakhyā* 1.17-34. *Suklayajuh Pratisakhyā* 1.55-61, *Taittiriya Pratisakhyā* 1.31-37 and *Paniniya Siksa* 4.20. *Sambhu Siksa* has 45 *Stolas* devoted to the theory of temporal quantity of syllable. *Kalanirnaya Siksa* and its commentary called *Kalanirnaya Dipika* by Muktisvaracarya is

number with the rhythm), was evolved and on this basis various metres were classified.²⁶ Classification of metres employed in *Rksamhita* gave rise to the concept of fundamental metres and the derived metres.²⁷ Consistent and exhaustive classification of metres posited a fascinating logical problem as some

entirely devoted to the theory of temporal quantity of syllable. These texts deal with theoretical aspect of quantity and on it are based all works in Indian tradition which are related to prosody and rhythmic aspect of music. In fact syllable quantity becomes minimal unit of time in Indian astronomy. See *Aryabhatiyam* 2.2 and *Surya-siddhanta* 1.11 b. *Rkpratisakhyam* 13.50 says that time taken to pronounce short vowel=Bluejay's chirp; For long vowel=crow's croak and very long vowel=peacock's cry. These three units are in ratio 1 : 2 : 3 and are fundamental to the theory of quantity.

26. The first detailed classification of metre is in *Rkpratisakhyam* chapters 16, 17 and 18. The numerical arrangement of syllables forms the back-bone of classification as the first principle of classification is number of syllables. In *Sarvanukramani* [12-6] Katyayana defines metre as a result of numbers of syllables. The next principle is the number of lines and the distribution of syllables in these lines. Further finer classification was done on the basis of coherence with adjustment of accent order, metres, meaning and order of short and long syllable. In *Chandahsutra* of Pingala classification is done on the basis of additional concept of 'gana' which is a unit of three syllables and he did away with the Vedic concept of 'pada' or line. He uses permutation and combination of three long or short syllables of 'gana' to define all metres. Halayudha in his commentary on *Chandahsutra* constructs diagram of 'Meruprastara' (Pyramidal diagram) which is akin to Pascal's Triangle of coefficients of Binomial expansion.
27. *Rkpratisakhyam* 17, 19, 168, 16.80, 16.89-90, gives list of 26 *chandas* which are defined for the sake of numerical elegance beginning with 4 syllable metre to 104 syllable metre by ascending in the step of 4 syllables. Each of 26 metres has four variants 1 syllable less (Nicrt), 1 syllable more (Bhurika), two syllables less (Virat) and two syllables more (Svarat). This way metre from 2 syllables to 106 syllables are classified. In *Rgveda* first five and the last seven metres are not found (e.g. 2 to 22 syllabic metre and 78 to 106 syllable metre). Only 14 primary metres are found. About half of *Rksamhita* is Tristubh ($11+11+11$), $1|4$ is Gayatri ($8+8+8$), $1|7$ is Jagati ($12+12+12+12$) metre. So $4|5$ of Samhita is just these three primary classes of metres. Then there are some which are called mixed

hymns could be classified under more than one head.²⁸ In this keen enquiry was the birth of the discipline of Chandah-sastra or science of prosody sometime in the middle of Sruti phase. The detailed and exhaustive classification of metres of Rgvedic hymns was a most decisive way of determining the structure and thus fixing the incantation as well as helping memorising of *Samhita*. In fact, classification of hymns in the *Rksamhita* critically depended on the theory of metre evolved for the purpose. It is important to understand the concepts of *rc* (*mantra* or hymn), *pada* (line) and *avasana* (pause) to understand the classification structure of *Rgveda Samhita* and these concepts are intimately related to the theory of metre.

Socio-culturally *Rksamhita* was intrinsically related to the ritual aspect of pastoral world. *Rc*²⁹ or *mantra* was a mini-

metres (*misrita chandas*) as they have uneven lines. For example Viradrupa Tristubh (11+11+11+8), Jyotismati tristubh (12+8+12+12), Mahabhrati tristubh (12+8+8+8), Yamadhyu tristubh (8+8+12+8) and Abhisarini Tristubh (10+10+12+12). *Rksamhita* has metres of one line (RV 10.20.1) to 8 lines (RV 1.133.6 & 1.127.6). Even 12+12 is called Dvipadagayatri as it is equivalent to 8+8+8=24, the original Gayatri, in terms of total number of syllables. The classification becomes more complex when we note that in *Rksamhita* line with 4 syllables [RV 8.46.15] to the line with 16 syllables [RV 2.22.1] exist. To uniquely define every metre was an extremely tedious task. A text which gives list of various *chandah*-s is Venkatamadhava's *Chandonukramani*.

28. Major theoretical problem is how to divide Samhitapatha into *pada* or lines of metres. What determines how many syllables make a line of metre? Classification into metres of the hymns will crucially depend on the solution of this question. According to Jaimini [Jaimini sutra 2.1.35] *pada* is obtained from meaning. Also cf. *Nidana Sutra*'s commentator Tataprasad [p. 2]. *Rk pratisakhya* [17.25] gives three principles for deciding the question (1) *Prayah* (contiguity) : division of line in accordance with the neighbouring mantras of the same section or *Sukta*. For example RV 1.61.12 is 10 syllable line, so it should be called Vairaja line, but since in rest of the *Sukta* Tristubh metre is prevalent, hence *parva* is turned into *paruva* to make it 11 syllable line; (2) *Ariha* (meaning) : *pada* is that collection of syllables which completes meaning and (3) *Vrta* : In accordance

mum unit in *Samhita* which was of significance for the community in general. Units smaller than *rc* were of value only to the community in *sakha-s*. *Rc* was complete in meaning and signified invocation or praise of a particular action, instrument, theme or deity.³⁰ *Rc* included in the appendix for illustration is in praise of medicinal herbs that save men and domestic animals from disease and death. *Rc-s* are made out of meaningful words and contain several lines or *pada* (e.g. *rc* included in appendix has four *pada-s*), and embodies metrical aspect [e.g. *rc* in appendix is in *anustubh* (8+8+8+8 metre)] and has definite accent.³¹ Recitation of *rc* is punctuated by at least one pause or *avasana*³² primarily to catch breath but also because of reasons of prosody. Rules for pause in the *Samhita* recitation were determined in terms of the number of lines or *pada* in the *rc*. To exhaust the domain of application of rules several exceptional cases were singled out in terms of exceptional rules (*apavada*).³³ Concept of *rc*, *pada*

with rules of long and short syllables. An interesting logical problem arises because application of these three criteria might give conflicting results in some cases. For example, in RV 10.73.7 3rd and 4th *pada-s* illustrate conflict between *prayah* and *artha*. Similarly in RV 8.44.23 3rd pada illustrates conflict of *Artha* and *Vrta*. For this situation *Rkpratisakhyā* (17.26) gives a meta-rule that in the case of conflict earlier criterion is applicable. Besides, still finer criterion of accent is brought in. For example, *Rkpratisakhyā* 17.27 says that except for *ukara* no *anudatta* accent can come in the beginning of the *pada* in the whole of *Rgveda*. Using fine distinctions and metalogical method a situation was avoided when same hymn gets classified under two metres.

29. *Ro*- is what hymns were called by the *Rgveda* itself, 1.164.39 and 10.71.11 etc. The term *rc* is exclusively used for the hymns of *Rgveda* and among *Pratisakhyā-s* only *Rkpratisakhyā* uses the term to refer to hymns and that too abundantly e.g. 8.9, 16.19, 31, 44, 63, 73, 78 and 17.3 etc. Interestingly according to *Jaiminiya-sutra* 2.1.35 'Rk is that whose lines or *pada* are decided in accordance with meaning'.
30. As Sayanacarya says : *arcyate prasasyate anaya devevisesah kriyavisetas taisadhanaviseso va iti rksabdavyutpattiriti|Rgbhasyabhumi*.
31. These in fact are the 'characterisations of *rc*'. According to Sayanacarya [*Rgbhasyabhumi* p. 71], metrical *mantras* which embody meaning and lines are called *rc-s*. And Visnumitra in

and *avasana* and the characterisation of *rc*-s according to metres made *Rksamhita* more or less technically well structured and made possible neat articulation of this structure. *Rc* is quite small a unit and *Rksamhita* has about 10552 of them. *Rksamhita* is divided into groups of *rc*-s which are called *sukta*-s. *Sukta* grouping is done according to three criteria : (1) lineage which was responsible for initial compilation of the bundle of *rc*-s, e.g. the first *sukta* of *Rgveda* belongs to Visvamitra lineage, (2) theme around which the bundle of *rc*-s is composed, e.g. the first *sukta*, is Agni and (3) metre in which the bundle of *rc*-s is composed, for example, the first *sukta* is composed in Gayatri metre. Most of the 1028 *sukta*-s³⁴ of *Rksamhita* are characterised by unique triplet marker based on the three criteria, namely, lineage, theme and metre. There are many *sukta*-s where this characterisation becomes cumbersome like the 67th *sukta* of 8th Book,³⁵ which contains 32 *rc*-s characterised by 8 lineages, themes and 4 metres. Finally these *sukta*-s are aggregated into 85 *anuvaka*-s and further into Ten Mandala-s or Books. This completes the structure of *Rksamhita*.³⁶

3.3. THEORY OF PRONUNCIATION DEVELOPED TO FIX INCANTATION OF SAMHITA

Explicit articulation of the structure of *Samhita* not only was of pedagogical interest to the students and teachers in *sakha*-s but also helped fix the text of *Samhita* to some extent. At

his *Vargadvaya Vrni* (p. 13) and which is included in the *Rkpratisakhy*a edition says, limited syllables, lines and *ardharcas* make *rc*-s.

32. 12 *sutras* of *Rkpratisakhy*a 18.46-57, deal in the rules of pause or *avasana* in *Rksamhita* incantations. *Vaj. Prat.* 3.31, 4.22 and *Atharva Prat.* 14 also deal with it.
33. Rules for 3 line to 8 line *rc* are given in *Rk. Prat.* 18.47-52 respectively. And exceptions are given in *Rk. Prat.* 18.54-57.
34. The number of *rc*-s and *sukta*-s is taken from table on p. 767 of *Rksamhita* ed. by V. S. Satvalekar. Paradi : *Sarvanukramani* says there are 85 *anuvaka*-s, 1029 *sukta*-s, 10580+ *rc*-s and 153836 in *Rksamhita*. Varma (1972) p. 4.
35. *Rgveda* 8.67.1-32.
36. See ed. of *Rgvedasamhita* and Varma (1972), p. 43.

least it standardised to a large extent order of Books, order of *sukta*-s etc. But standardising the general order is not sufficient to orally fix the text as it cannot ensure checking of insertion or deletion of *rc*-s, words and sounds etc. Fixation of text orally does not merely involve fixing order of hymns, which undoubtedly has to be preserved ; but also fixing of actual performance of incantation. Since the significance of hymns was in actual incantations it was this actual incantation which was to be transmitted through the ages and for that purpose fixed. This required that the details of utterance itself, that is, sound, accent, tempo, and even musical aspect of incantation, besides metre and position of pause, be fixed as well. Fixing of these details was in fact achieved in the *Sruti* phase. This involved detailed study of phonemes, the explicit and minimal units of utterance, and syllablisation of human speech. This effort led to development of theory of physiology of utterance or theory of the physiological basis of phonetics. We will later elaborate on this interesting development. Three kinds of accents³⁷ in *Samhita* were related to rising (*aroha*) and falling (*avaroha*) tone, which was related to particular physiological effort³⁸ needed to produce them. Eight kinds of *svarita* (circumflex) accent were distinguished,³⁹ phenomena of jerk in accent,⁴⁰ conjunction of accent,⁴¹ faults

37. Whole third chapter and parts of 12th, 15th and 17th chapters of *Rkpratisakhyā* deal with the theory of accent evolved for the purpose of fixing accent in *Samhita*. The three kinds of accent were *Udatta* (acute), *Anudatta* (grave) and *Svarita* (circumflex). In the writing of *Rgveda Samhita* no sign is put for accute accent, ‘—’ sign is put below to indicate grave accent and ‘|’ sign is put above to indicate circumflex accent.
38. Three distinct efforts to produce three accents were called *ayama*, *visrambha* and *aksepa* respectively by Uvata's commentary on *Rk. Prat.* 3.1.
39. There was some amount of controversy regarding nature of *Svarita* as it was supposed to be half acute and half grave ; see *Rk-Prat.* 34-13 and Uvata's commentary. Three primary divisions of *Svarita* were suggested and three-fold two-fold, three-fold further sub-divisions were suggested in these *sutras*.
40. *Rkpratisakhyā* 3.34 and Uvata's commentary on it. In this section are covered sudden shifts in accents.
41. When two words join phonetically, that is, the last letter of first and the first letter of second word coalesce the phenomenon is

of accent articulation⁴² were studied, and rules related to application of accent on *samhita-patha* were formulated. Such a study in detail helped to standardise the text of *Rksamhita* in details, upto each and every syllable.

Even the tempo of utterance was divided into three modes, *vilambita* (slow), *madhyama* (intermediate) and *druta* (quick).⁴³ Intermediate mode was suggested for actual performance, quick one for the rehearsal and the slow for teaching.⁴⁴

With the theoretical apparatus developed to grasp metrical aspect, sounds, accents and tempo of incantation it become possible to standardise and fix oral recitation of *Rksamhita*. Details of pronunciation⁴⁵ were made explicit so that incantation

called Sandhi (euphony). Not only end sounds but also the accent undergoes euphony. *Rkpratisakhyā* 3.11-16 gives rules of conjunction of accents. Interestingly 3.13 is an exceptional rule (*apavada*) of rule 3.11. 3.11 states that acute and grave coalesce into acute whereas 3.13 states that result is circumflex in *ksipra* euphony and *abhinihitā* euphony and *praslista* euphony of *ikara-s*.

42. Five standard faults are listed in *Rk. Prat.* 3.29-33—Interestingly there is a fault called *Kampadosa* (3.31) which according to commentator Uvata is found in 11th century Vaidika-s of south India. This seems to be related to the contemporary south Indian musical tradition which banks on Kampana.
43. *Rkpratisakhyā* 13-46-50 deal with the tempo of utterance. The classification is made in 13-46. 13-8-50 defines the relation between the two by relating them to the unit of time. If in slow mode one *matra* is pronounced in intermediate 2 and in quick 3 will be pronounced.
44. *Rkpratisakhyā* (3.9).
45. *Paniniya Siksa* 52 brings this point home—*māntra hinah* etc. Hymns free of care about accent and letters embody illusion and are unable to enshrine intended meaning. On the other hand they can destroy Yajamana by becoming weapon (*vayavjra*). Example is the mistake in accent of 'Indrasatrū'. Example of 'Indra-satrū' is classic illustration of mistake and is often presented when introducing the science of accent. In the incantation of hymn 'Indrasatrurvardhasva' the word Indrasatrū' is either made by Bahuvrihi, as of, 'Indrah satrur yasya' or Sasthisama as of 'Indrasya satruḥ : In the first case 'I' of 'Indra...' will have high accent and in the second 'U' of... 'trū'... In a *yajna* organised by *asura* *Tvasta* to obtain son *Vṛtra*, who will kill Indra, the mistaken pronunciation of high accent 'I' in 'Indra'... resulted in Indra becoming fatal enemy of *Vṛtra* and killing him.

itself is fixed, not merely the text of the *Rgveda Samhita*, which was standardised by articulating structure of the text. The practice of continuous recitation was called *samhitapatha*, which is compared to emptying a vessel of its liquid, again and again. In *samhita-patha* sounds were recited continuously except for the pause which was necessitated by the need to catch breath and also by the reasons of prosody or elegant incantation. In appendix we have written down *samhita-patha* of one *rc*. It is evident that all syllables are continuously recited except for the pause in the middle and at the end which is indicated today with sign of *virama*. The whole *Rksamhita* was memorised in this continuous fashion with well-set points of pause. The continuous recitation mode was also adopted at the time of incantation. In fact it was this continuous recitation mode which was the actual *Rgveda* in *Sruti* phase and not the printed text we have today where *rc*-s are written with modern indicators of punctuations.

3.4. SIGNIFICANCE OF MEANING FOR FIXATION AND THE IMPORTANCE OF WORDS

Memorising *samhita-patha* was quite a task. It was important that the meanings of songs and hymns be understood to avoid mindless cramming which can easily lead to contamination. Understanding meaning entailed that meanings of words used in songs and hymns be understood. Yaska, the author of the first ever book on etymology, the *Nirukta*, calls those persons blockheads and bearers of burden only, who having learnt Veda do not understand the meanings involved.⁴⁶ And he further says ‘whatever is learnt without being understood is called mere cramming ; like dry logs of wood on an extinguishing fire, it can never illuminate.’⁴⁷

46. *Nirukta* 1.18. Also quoted in Visnumitra’s *Vargadvaya Vritti* p. 8 on *Rkpratisakhyā*.
47. *Nirukta* 1.18 This passage is also quoted by Patanjali in *Mahabhasya* i.1.1 p. 12 and Sayana’s commentary on *Mantra Brahmana*. Durgacarya in his commentary on the above passage says—“A person who commits Vedic texts to memory without understanding is comparable to an ass bearing a load of sandal-wood, who perceives its weight but not its fragrance.”

The list of important and recurring words used in the *Samhita* were listed in the form of *Nighantu-s*, and the tradition of explaining their meanings also was in existence much before Yaska (c. 700-500 B.C.) Undoubtedly such exercises would have played a significant role in enabling to develop grasp over the key words. In fact each and every word used in *Rksamhita* needed to be understood to intelligently memorise it. To segregate words out of continuous recitation was itself a problem. This can only be done by referring to currency of words in day to day language. The realisation that the word is a unit of human language is evident even in *Rgveda* (I.164.45), where words are said to be of four kinds.⁴⁸

3.5. INVENTION OF THE DEVICE OF *PADAPATHA* AND DEVELOPMENT OF THE THEORY OF *SAMDHI* OF SOUNDS AND ACCENTS

The continuous recitation, Samhitapatha, was divided into words and the recitation of words called Padapatha was devised.⁴⁹ Padapatha was word by word recitation of the continuous recitation. The third section of the appendix illustrates Padapatha of a *rc*. In word by word recitation pause is given after every word to clearly distinguish it. Word by word recitation was not just a slow form of continuous recitation or the distinction between the two is not just more or less frequent occurrence of pause. The two recitations had different sounds. For example, *brahmanastam.....* of continuous recitation becomes '*brah-*

48. Later texts give elaboration on this cryptic statement from *Rgveda*; *Nirukta* 1.1 and 1.2 and Durgacarya's commentary on it gives these four genera of words as: *nama* (nouns), *akhyata* (verb), *upasarga* (preposition) and *nipata* (particle). Nature of these genera and their relation is further elaborated in *Nirukta*. Another ancient book *Rkpratisakhya* 12.17 to 12.26 deals extensively with it.
49. Padapatha is also called 'Asamhita' which means 'not joined'. *Vajasaneyi Pratisakhya* 1.156. 'when words are separated out it is 'Asamhita'. Padapatha is also called 'Pratrnna' in *Aitareya Aranyaka* 3.1.3, when syllables are pronounced pure without combination it is called 'pratrnna'; 'pronouncing of two words with two clear and pure syllables without euphony is called Padapatha of 'pratrnna'.'

manah. tam.' in word by word recitation. The sound 's' of continuous recitation is replaced by sound 'h' in the word to word recitation. The difference in the sounds of the two recitations is natural. When distinct words are spoken in a way that on time gap is left in between pronunciation of these words then sometimes the sounds of words undergo modification. In other words, the end sound of one word and the initial sound of second word are to be pronounced in close proximity, sometimes these two sounds react and produce a new sound or undergo modification. This phenomenon is known as euphony or *samdhī*.⁵⁰ In fact, technically, Samhitapatha is defined in *Rkpratisakhyā* as that 'when union of word-ending and word-beginning sounds is accomplished without leaving any time gap'.⁵¹

It is not necessary that end-sounds of words have to undergo modification (*vikara*) whenever pronounced without time gap. Most of the time in fact sounds do not undergo modification in the day to day language usage. Later the ancient Indian grammarians defined the phenomenon of euphony or *samdhī* only when modification (*vikara*) occurs because of conjunction. Contrary to this definition of *samdhī* the earlier phonetical theory associated with Samhitapatha and Padapatha maintained that any word brought together phonetically implies *samdhī* even if there is no modification.⁵² This understanding of *samdhī* was called for because of the use of the term for the study of the construction of Samhitapatha from Padapatha.

50. The term 'Samdhī' in the sense of 'union' is used in *Rgveda* 8.1.12. Later the term is used explicitly in a technical sense of conjunction of syllables. *Vajasaneyi Pratisakhyā* 3.3 clearly defines it. *Rkpratisakhyā* uses the term frequently 2.34, 4.41, 4.78, 7.1 and 10.18. *Rktantra* 94, 96, 97, 111 and 283 uses term '*sandhaya*' for it whereas term 'Samkara' is used in this sense in *Vajasaneyi Pratisakhyā* 1.1. *Atharva Pratisakhyā* and *Caturadhyayi* do not employ the term at all.

51. *Rkpratisakhyā* 2.2.

52. Several types of Samdhīs propounded in *Rkpratisakhyā* do not admit of any modification (*vikara*). Another Samdhī called *anuloma anvaksara* in *Rkpratisakhyā* 2-8, also is one in which no modification takes place. Besides there are many exception rules (*apavada-sutra*) and counter-rules (*nipatanasiutra*) dealing with Samdhī where no modification occurs.

The scholars in the *sakha-s* took theoretical interest in the phenomenon of *samdhī* because of the need to reconstruct and hence fix Samhitapatha on the basis of Padapatha. In this enterprise *samdhī* was explicitly used in the sense of bringing together words of Padapatha thus forming Samhitapatha. Now whether modification occurs or not the domain of *samdhī* is universal. In *Yajnavalkya Siksa*⁵³ in fact it is clearly stated that *samdhī* is of four kinds ; (1) *lopa*,⁵⁴ where elision of syllable is involved, (2) *agama*,⁵⁵ where a syllable gets inserted, (3) *vikara*,⁵⁶ where syllables get modified, and (4) *prakrtibhava*,⁵⁷ where sounds do not change. The grammarian Panini was to regard absence of *samdhī* as *prakrtibhava* in contrast to its being one kind of *samdhī*.

An extremely intricate and challenging study of the phenomenon of euphony was made in the *sakha-s*. To fix Samhitapatha with the help of Padapatha, first thing that was needed was to study in depth syllables and letters which occur at the end and the beginning of the words.⁵⁸ Such detailed study

- 53. *Yajnavalkyasiksa*, p. 83. There are four kinds of *samdhī-s*, *lopa*, *agama*, *vikara* and *prakrtibhava*.
- 54. 'Lopa' means 'to vanish' [from root *lup*]. It was first used in technical sense in *Nirukta* 2.1 *Rkpratisakhyā* 4.80 etc. *Vajasaneyi Pratisakhyā* 1.141 defines it as zero occurrence of letter, whereas in *Taittiriya Pratisakhyā* it is defined as destruction of letter. When any letter which occurs in Padapatha does not occur in Samhitapatha it is explained by the rules of *lopa* kind of Samdhi.
- 55. Agama in the technical sense of insertion of letter is used in *Rkpratisakhyā* (2.31). The term *upajana* is used in the same sense in *Rkpratisakhyā* (4.84). It gives two kinds of *samdhī* under the title Agama.
- 56. This kind of Samdhi is what the later rules of Samdhi in grammatical literature deal with. The difference in sounds in Pada- and Samdhi-patha are generally explained through this kind of Samdhi.
- 57. Prakrtibhava means that which remains in the natural form. *Vajasaneyi Pratisakhyā* L.80. The term 'Prakrti' is used in *Rk Prat.* 2.51, 'prakrtya' is used in *Taittiriya Pratisakhyā* 9.16, *Vaj. Prat.* 3.11. To indicate word endings which do not admit of any change or modification in sound *Rk. Prat.* 2.52 suggests use of *iti* in *Padapatha*.
- 58. Results of such an inquiry are presented earliest in 12th chapter of *Rkpratisakhyā* 12.1 to 16.

of letters not occurring in the beginning,⁵⁹ letters not occurring at the end,⁶⁰ and letters not occurring together was made.⁶¹ This was an extensive empirical exercise. Formation of *samdhi* rules could have been based only on such empirical exploration as locus of the phenomenon of euphony lies in the word-endings and word-beginnings, though of course in certain cases sounds in the middle also change. Successful formulation of *samdhi* rules was an essential pre-requisite for putting Padapatha to use. In fact, it can be said that the most significant theoretical endeavour was necessitated by the desire to reconstruct Samhitapatha from the Padapatha and the *Pratisakhyā*⁶² class of literature was devoted to just this problem. Even from the logical point of view the problem posited an intricate challenge and was handled by devising three-tier rules structure.⁶³ We have dealt with the logical aspect elsewhere. The theory of *samdhi*⁶⁴ which evolved out of the inquiry is im-

59. *Rk. Prat.* 12.1 gives list of 25 letters which do not come at the end of word. The only vowel which does not come at the end is 'ri'. The rest of 24 are consonants.
60. *Rk. Prat.* 12.2 gives list of 13 letters which do not occur in the beginning of words, 'ri', and 'li' are the two vowels among them. Varma (1972) p. 119 says that letter 'dh' also does not occur in the beginning but is not noted by the author of *Rk-pratisakhyā* and Uvata who commented on it.
61. *Rk. Prat.* 12.3 to 12.35 deals with letters which do not occur together. For example 'c', cerebral 't' and dental 't' according to rule 12.3.
62. *Rk. Prat.* Chapters 2, 4, 5, 7, 8 and 9 are entirely devoted to formulating rules of euphony. Even other chapters deal with the material related to euphony like the 12th chapter quoted above.
63. The three tier rule structure is the universal rule (*samanya-sutra*) applicable universally, the exceptional rule (*apavada-sutra*) applicable in a small portion of the domain of universal rule but gives exception to the universal rule, and the counter-rule (*nipatana-sutra*) gives exception to universal as well as exceptional rule.
64. The complexity and elaborateness of theory of Samdhi is evident from the kinds of euphonies delineated and the intricate relation between these in the three-tier logical structure. The major *samdhi*-s are (1) Svarasamdhi (combination of vowels), (2) Svaravyanjanasamdhi (vowel-consonant combination), it is called Anuloma anvaksara-samdhi (combination according to succession

pressive and formed the basis of later morphological and syntactic investigations of etymologists and grammarians. An extremely novel aspect of the investigation into re-creating of Samhitapatha from Padapatha was the theory of *samdhī* of accents. Even the accents undergo modification when distinct words are brought together to recreate *samhīta*.⁶⁵ Our example in the appendix illustrates difference in accent between various *patha*-s or recitations.

Such investigation into the phenomenon of euphony related to the sounds as well as accent made possible non-ambiguous re-creation of the original *Rksamhīta* from the word by word recitation. The device of word by word recitation not only helped fix word-order and meanings of hymns but also accents and syllables. The importance and significance of Padapatha in fixing *samhīta* cannot be over-emphasised. Also development of theory of *samdhī* in the history of linguistic ideas is intimately tied to the development of the device of word by word recitation and re-creation of continuous recitation from it. And the development of the device of Padapatha was solely related to the need for orally fixing Samhitapatha. There was no other reason to develop the device of Padapatha.

3.6. INVENTION OF THE DEVICE OF KRAMAPATHA AND INTERNALISATION OF THE KNOWLEDGE BODY OF SAMDHĪ IN RECITATION STRATEGY

In the oral tradition merely memorising Samhitapatha and Padapatha would not be sufficient. Without thoroughly knowing the body of knowledge related to euphony of sound and accent memorising Padapatha would not help much. Though this knowledge was evolved, the proper application of it had to be ensured also. An oral device to even ensure this was also developed and it was called Kramapatha.⁶⁶ In Kramapatha,

of syllables) ; (3) Vyanjanasvara-samdhī (combination of consonant and vowel)—it is called Pratiloma anvaksara Samdhī (combination contrary to the succession of syllables) ; euphony of consonant and consonant.

65. *Rksamhīta* 3-11 to 16 gives nine rules of combination of accents.
66. There are indications of dispute from the *Rkpratisakhyā*, about archaichood of Kramapatha as well as its utility and as to who

recitation is done with two words taken together as a unit. The first two words are recited, then the second word of the first pair is taken together with the third word to form a second pair, then the second word of second pair is united with the fourth word to make a third pair, this way pairs are made till half of *rc* is finished.⁶⁷ It is only then the pause is taken. See section A3 of appendix for the illustration of *karma* recitation. The *krama* recitation stands in between *samhita* recitation and *pada* recitation. It retains property of *samhita* recitation in so far as it displays modification of sounds and accent because of joining of two adjacent words, at the same time it retains word-endings of *pada* recitation. The oral device of *krama* recitation in a way internalises the knowledge-body of *samdhī*. Besides, *krama* recitation reinforces fixation of word-order, accent in *samhita* recitation, sounds of syllables, and the sounds of word-ending. It in fact helps demonstrate both sides of a bare word along with the result of words joining together through *samdhī rules*.⁶⁸

The device of *krama* recitation was a subject of various disputes in the ancient time as we learn from *Rkpratisakhyā* (11.61 to 65). According to it (11.64), "Only the *krama* recitation which was originally propounded is right but not the many kinds as propounded by numerous scholars," the originally propounded being the one devised by Babhravya and the one we have described and given in the appendix, section A3. There could be many variants of *krama* recitation in the early times. At least later many variants and deviants did exist and we have illustrated nine of them in the appendix, sections A 7.1 to A 7.9. In these recitations, as it is obvious from the appendix, word-order and pronunciation details are so juggled

invented it. *Rk.prat.* 11.65 to 11.71. It is said that Babhravya, son of Babhrū, first propounded this device for the benefit of students.

67. *Rkpratisakhyā* 10.2. 'Beginning with two words, take the second word and join it with the next, this way continue till the half *rc* is complete'. Similarly in *Rkpratisakhyā* 11.1 : 'without losing any part of continuous recitation when two words and their union is pronounced at the same time it is called *karma* recitation.' See also *Vajasaneyi Pratisakhyā* 4.183..

68. *Rkpratisukhya* 11.64.

in a very many pre-determined ways so that the *samhita* recitation becomes entirely fixed. Many of these recitations even employ pronouncement of words in reverse order. The art of well-ordered jugglery with the words of *pada* recitation using knowledge-body of *sumdhi* of sounds and accents to fix Samhitapatha was well cultivated in Sruti period. Undoubtedly most of these variants and deviants of *krama* recitation were devised later as the time passed into a phase of history where *Rksamhita* got alienated from its socio-cultural roots, and stopped growing as a living tradition. Need for further rigidification of oral recitation modes to keep alive fixed Samhitapatha perhaps led to the devising of complex deviants of *kramapatha*. Even till today we find experts who have at the tip of their tongue complexly knitted recitations which help reconstruct and preserve uncontaminated transmission of *samhita* recitation through the ages. For example, an expert from Andhra Pradesh who died in January, 1968 could recite whole of *Krsna Yajurveda Samhita* in reverse, literally in reverse, from the end to the beginning word by word.⁶⁹

3.7. SCIENTIFIC STRATEGY FOR ORALLY FIXING RGVEDA BECAME MODEL FOR FIXING OTHER LONG TEXTS

The tradition of the three recitations, that is, *samhita*, *pada* and *karma*, to a great extent successfully fixed the text of *Rksamhita* with an incredible accuracy. The additional variants of *krama* recitation if they were in use in Sruti period would have helped further consolidating the task of fixing. The invention of these devices replace the need of writing for the fixing of the long text. Oral fixation in fact even led to fixation of pronunciation of sounds and accents which graphic fixation could never have achieved at that time. The oral integrity of the incantations itself was fixed, and was preserved through the heat and dust of centuries. Most significant in the enterprise of orally fixing long text of *Rksamhita* was the development of the knowledge-body of phonetics which involved construction of the theory of syllabllisation, theory of the nature of words and theory of euphony of sounds and

69. News item related to his death and obituary was published in English daily from New Delhi, Patriot, January.

accents, theory of accents, theory of prosody and detailed exhaustive accounts of relation of *samhita*, *pada* and *krama* recitations. The knowledge-body of phonetic formed a back-bone of later celebrated works on linguistics in ancient India. Not only the knowledge-body became a back-bone of future linguistic research but the entire strategy to orally fix *Rgveda-samhita* became a model for fixing other long compositions and compilations. Only a little deviation here or there was required to adopt the *Rksamhita* fixation strategy model for fixing long compositions involving different literary styles. *Samaveda Samhita* required development of the original fixation model to fix also musical aspect to uniquely central to *saman* chants.⁷⁰ Similarly *Yajurveda Samhita* required extention of original model to fix even prose style text without the help of theory of metre. Fixation of *Atharvaveda Samhita* hardly required any change from the original model of *Rksamhita* fixation.

3.8. FIXING OF SAMAVEDA SAMHITA AND FAILURE TO FIX MUSICAL ASPECT OF SAMANS

On the basis of the model of orally fixed *Rksamhita* later even the texts of various other *Samhita*-s were standardised and fixed in the second half of the *Sruti* phase. *Samaveda Samhita* is almost entirely derived out of *Rksamhita*,⁷¹ out of 1810 stanzas 1735 are borrowed from *Rksamhita*, mostly from Books VIII and IX and not at all from Book X.⁷² Even the remaining 75 are derived from *Yajur* and *Atharva Samhita*-s. *Sama-*

70. If we ignore repeated stanzas out of 1549 some 1474 are borrowed from *Rksamhita*. *Samasamhita* is divided into two broad sections, Purvarcika or Arcika (858 verses) and Uttararcika (1225 verses).
71. This fact is often used to argue that the 10th *mandala* of *Rksamhita* is a later addition.
72. Samavedins employed several devices to adopt Rk hymns to music : (a) Vikara (changing pronunciation of Sigh words), (b) Vislesana (splitting the words apart), (c) Vikarsana (inserting lengthened or *pluta* vowels between split-up syllables of a word, (d) Abhyasa (repetition), (e) Virama (splitting the succeeding word and joining its first syllable to the first syllable of the preceding words before introducing a pause between the words), and (f) Stobha (insertion of syllable not presented in the *Rksamhita*). Sukumari Bhattacharji (1984), p. 161.

veda version of Rg hymns was considerably different as the hymns were sung and not flatly recited. *Samaveda* perhaps epitomised standardisation of the practice of singing hymns or rather it represented appropriation of Rg hymns in the musical practices of the time.⁷³ In the tradition of *Samasamhita* the process of accentuation and tonic aspect of chant became significant and at the same time complex. It perhaps needed additional development in the theory of accent and the musical scales to fix the musical aspect of the chants. Though we have later evidences of the theoretical developments in this direction yet such detailed theory was not developed in the early times. The result is that we hardly know about the *saman* music today,⁷⁴ whereas details of accent of *Rksamhita* are so meticulously preserved. Somehow devices used for the retention of *Rksamhita* or rather they were modelled on it *Samasamhita* needed additional devices to fix even musical details other than fixing sound, word-order etc. Why could not the musical richness be also fixed orally in the Sruti phase is a challenging and open problem.

3.9. FIXING YAJURVEDA SAMHITA AND INVENTION OF COMPLEXLY KNITTED RECITATION STRATEGY

Yajurveda is a prose composition very different from the Rg-vedic poetic composition. In fact two *Yajurveda Samhita* texts

73. *Naradiya Siksa* gives detailed theory of accent and music for melody. It gives seven tone scale, 21 semitone *sruti*-s in an octava notion of family of melodies. Bharatamuni's *Natyasastra* also deals extensively with theory of music. See for details Swami Prajnanananda, *Historical Development of Indian Music*, Calcutta, 1973.
74. "... for centuries the large bulk of Rgvedic texts were handed down by oral teaching with incredible accuracy, but...there is absolute uncertainty about the intervals of the *Samaveda* chants ...accentuation in the course of time has totally changed its characters...." B. Faddegon, *Studies on the Samaveda*, Amsterdam, 1951, part i p. 11. However, details of ancient chants have been worked on by a *Samaveda Brahmin*. Laksmana Shankara Bhatta. *The Ancient Mode of Singing Samagana*, Poona, 1939.

are found in various recensions.⁷⁵ *Yajurveda* contains many new liturgical compositions and about one-sixth of it is straight away or in mutilated form borrowed from *Rgveda*. Fixing of the prose text in oral tradition is an added strain compared to the fixing of poetic text. The introduction of various variants and deviants of *kramapatha* perhaps are related to the need of uncontaminated relation of prose text. In fact, *Taittiriya Pratisakhya*⁷⁶ belonging to *Yajurveda* amply cites Jatapatha which introduces reverse recitations, (see appendix A5) and

75. The two texts are *Krsnayajurveda* and *Suklayajurveda* The various *sakha-s* of *Sukla Yajurveda* of which we know were :—(1) Karva, (2) Madhyandina, (3) Sapeya, (4) Tapayaniya, (5) Kaplia, (6) Paundravatsa, (7) Avatika, (8) Paramavatika, (9) Parasarya, (10) Vaidheya, (11) Vaineya, (12) Audheya, (13) Golava (14) Baijava and (15) Katyayaniya Vajasaneyi Samhita, the text of *Suklayajurveda* is found today in two recensions, Kanya prevalent in Maharashtra and Madhyandina prevalent in north and south India. In this text expositing prose of *Brahmana* is not mixed up with the *mantra-s* which are muttered in the sacrifice. In *Krsnayajurveda* they are mixed. We know some details of its five or six recensions though Samhita of only three have survived completely and one incompletely. These various recensions were : Taittiriya, most famous belonged to U.P., M.P. Rajasthan and north Gujarat ; Maitrayaniya, belonged to west coast in Gujrat and land between Vindhya ranges and Narmada river ; Katha, belonged to Punjab region and its text stands in between black and white *Yajurveda* ; Kapisthala, belonged to Punjab, Haryana and is only incompletely available.
76. *Taittiriya Samhita* of black *Yajurveda* and *Vajasaneyi samhita* of white *Yajurveda* keep quoted *rc-s* in their original form. The rest of the recensions largely quote *rc-s* partially. *Taittiriya Pratisakhya* 3.1, 5.33, 8.8, 12, 16, 35, 9.22, 10.9, 10, 13, 11.9, 16, 17, 12.7 and 20.2 into Jatapatha of *Yajurveda*. In fact Kramapatha gets hardly cited (23.20, 24.5, 24.5). According to Whitney who edited this *Pratisakhya* these appear to be later additions. According to the commentators, interpretation rules 8.12, to 35 deal with cases that arise only in Jatapatha. Whitney even remarks that the term *vikrama* (in the sense of Krama-vikrti) signifies Jatapatha in rules 23.20 and 24.5. Whitney concludes that the weight of evidence, upon the whole, is decided in favour of the assumption that the peculiar Jata combinations were had in view.

hence introduces hordes of euphonic combinations not involved in *Samhita* or *Kramapatha-s*. It is in this *Pratisakhyā* that the *Jatapatha* is first indicated and referred to unlike *Rkpratisakhyā*, *Atharvapratisakhyā* or *Rktantra* (of *Samaveda*) where no reference to *Jatapatha* is found. But most of the Rgvedic investigation into oral devices was centred around metric composition, much of the theoretical apparatus developed for the purpose and the key concepts were related to the metric aspect of recitation. To adopt oral devices of the fixation strategy of *Rgveda* was not possible straight away. The place of pause in the recitation had to be defined separately and then also the group of words called *pada*. This was in fact achieved by the traditions which were responsible for orally fixing prose text of *Yajurveda* by formulating separate rules for the position of pause in the recitation.

Vajasaneyi Pratisakhyā of Katyayana belonging to the *Sukla Yajurveda* tradition defines *samhita* as union of letters which are pronounced in one breath.⁷⁷ This way what is decided because of metrical reasons in *Rksamhita* is decided somewhat bluntly by the normal length of breath. Separate approach to the place of pause was developed for the recitations of *Yajus*. With this addition whole of the apparatus of the strategy of orally fixing *Rksamhita* could be adopted. Fixing of *Yajurveda* must have naturally led to more detailed investigation of words and euphony as *Jatapatha* throws in many new euphonic combinations because of its employing a reverse order. Though added empirical investigation was needed no further theoretical development was entailed because of the attempt to orally fix prose text of *Yajurveda Samhita*. This is amply demonstrated from the fact that *Rkpratisakhyā* is most extensive and comprehensive whereas *Vajasaneyi Pratisakhyā* and *Taittiriya Pratisakhyā* are smaller and largely dependent on it with no significantly new conceptual additions, the only difference being that if *rc-s* were metrically recited, *Yajus* were muttered.

77. *Vajasaneyi Pratisakhyā* 1.158.

3.10. FIXING OF THE TEXT OF *ATHARVAVEDA SAMHITA*

*Atharvaveda*⁷⁸ also repeats many Rgvedic hymns but has a large corpus of its own hymns, charms, spells etc., some of them dating back to remote antiquity. The standardisation of *Atharvavada* is undoubtedly much later than *Rgveda* though it is considerably different in subject-matter from the rest of the three Vedas and perhaps there remained a doubt in early days if it is to be considered as a Vedic *samhita*. Though *Atharvaveda Pratisakhy*a is an important work, it does not introduce any radical change in the theoretical apparatus developed by *Rkpratisakhy*a. Only distinctive element for fixing *Atharvaveda Samhita* was some of the meaningless charms in it but they posited minor problems of memorising meaningless euphonic formations.

3.11. LINGUISTICS : A UNIQUE FEATURE OF THE EXACT SCIENCE IN INDIA

We can safely conclude that the body of knowledge developed to orally fix *Rksamhita* in the absence of writing proved to be on the whole adequate for fixing other texts orally. This knowledge-body enabled accomplishment of marvellous task of fixing pronunciation (even accent) and recitation (incantation), thus making possible uncontaminated retention through the ages. The model of orally fixing *Rksamhita* remained the dominant model for this task throughout the Sruti phase. By the end of Sruti phase resurgence in prose literature also did not require a change in this model. Later Sutra style compositions were anyway short and did not posit any significant problem for oral fixation.

From the viewpoint of the history of scientific ideas the most significant is the successful enquiry into various facets of language which the enterprise of orally fixing the text led to. This enquiry led to the laying of foundations of phonetics. The

78. Nine *sakha*-s of *Atharvaveda* are known to have existed : Saunaka, Tanda, Manda, Paippalada, Jajala, Jalade, Cavanavaidya, Brahnavada, and Vedadarsa. *Samhita*-s of two are available today, (1) Saunaka and (2) Paippalada *Sakha*. The latter's *Samhita* was recently discovered in a manuscript form in some village of Orissa by D. M. Bhattacharya.

developments in phonetics created bases for later morphological analysis of words. Not only full-fledged theory of etymology got founded in the later phase of Sruti period but also syntax of the language became a subject of enquiry. This led to creation of the finest piece of reasoning from the ancient world, that is, the *Astadhyayi* of Panini,⁷⁹ which gives virtually an unambiguous grammar of Sanskrit.

What was most significant was that the spirited milieu, for the deep enquiry into the phenomena of language, got created in the later phase of non-literate period in the history of Indian subcontinent precisely because of the need to fix long text without availability of graphic means. And the success of the enquiry into various facets of language made it a unique feature of the history of exact science in India as distinct from the intellectual endeavour of other civilisations.

There is a need to pursue in detail the reconstruction of the content of various aspect of the linguistic knowledge developed in India. As an aid to this endeavour we will give a survey of the literary sources from the Indian past which can help reconstruct the detailed contents of the exact science of language developed in ancient period in India.

4.0. ANCIENT LITERATURE DEALING WITH THE KNOWLEDGE-BODY OF LINGUISTICS

The non-literate phase (c. 1500 B.C. to c. 500 B.C.) in the history of Indian subcontinent paradoxically witnessed a surge of literary activity or rather was also the phase of spurt in unprecedented literary activity. As we have seen, the kernel of linguistic knowledge (largely phonological) was developed in the period to fix the text of *Rksamhita*. Later, in the same phase, it was further developed to fix even other *Samhita*-s, the *Sama*, *Yajus* and *Atharva*. The *Samhita*-s and their associated literature, which were composed in the period that included various *Brahmana*-s, *Aranyaka*-s and *Upanisads* were

79. The logical rigour of Panini can only be compared with another masterpiece from the ancient world, the *Elements* of Euclid.

all handed down orally to later periods. Even the kernel of linguistic knowledge must have been handed down orally. We do not have a single integrated composition in which linguistic knowledge was codified. In a way it represents complexity of the process of knowledge generation and dispersion.

There are indications that linguistic knowledge related to fixing of pronunciation, recitation etc. did exist before 700 BC in a codified form. Yaska, in *Nirukta*, dated variously between 700 BC-500 BC, indicates existence of many phonetic treatises belonging to different branches of Vedic *sakha*-s (*caranani*).⁸⁰ Durgacarya, the 13th century AD commentator of *Nirukta*, equates these treatises with *Pratisakhyas*.⁸¹ Vishnumitra equates them with *Rkpratisakhya*. An 11th cent. AD commentary on *Rkpratisakhya* by Uvata was called *parsada vyakhyas* or simply *Bhasya*.⁸² The several medieval commentaries believed that *Pratisakhyas* belonged to each institution of *sakha* and several others believed that they were common to many *sakha*-s but related to particular *Samhita*-s.⁸³

To-day we have extant six *Pratisakhya* texts belonging to four Vedas. These are, in accordance with their relative chrono-

80. *Nirukta* 1.17 says 'words are regarded as fundamental in the linguistic treatises of all the groups of Vedic recensions.'
81. Durgacarya in his commentary says that 'parsada' or *Pratisakhya* were those treatises which dealt with division into words, *Samhitapatha*, *Kramapatha*, *Padapatha* and accent of the text of particular branch of Veda. Visnumitra in his *Vargadvayavrtti* on *Rkpratisakhya*, Sloka 1.
82. Another later commentary is called *Parsadavrtti* which is still unpublished, see preface pp. 47-50, M. D. Shastri. *The Rgveda Pratisakhya*, Vol. 1. Even Visnumitra, another later commentator on the first few *sutra*-s of *Rkpratisakhya* calls *Pratisakhya* as *Parsada*.
83. Anantabhatta (16th-17th century)—commenting on *Vajasaneyi Pratisakhya* 1.1 gives etymological exposition of the term as belonging to every *Sakha*. Bhatta in *Tantra Vartika* 5.13 thinks that *Pratisakhya* belongs to every *sakha*. Jnanendra Saraswati on the *Siddhantakaumudi*, Panini IV. 3.59 quotes Madhava holding this view.

nology :⁸⁴ (1) *Rkpratisakhya*⁸⁵ by Saunaka ; it belonged to Saisiriya branch of the extant Sakala-sakha of *Rksamhita* ; this is an only *Pratisakhya* which deals with metrical aspect and is the oldest as well as the longest ; (2) *Taittiriya Pratisakhya*⁸⁶ belonged to Taittiriya sakha of *Krsna Yajurveda Sam-*

84. S. Varma (1961) p. 12-12 gives several arguments that the *Pratisakhya* belonged to group of Sakhas. The basic arguments are that (1) we do not find as many *Pratisakhya*-s as Sakha-s (2) *Pratisakhya* cites scholars belonging to several Sakhas and (3) rules given in a particular *Pratisakhya* are applicable to many Sakha-s of a particular Veda. Besides he cites Vaidikabharana's commentary on *Taittiriya Pratisakhya* 4.11 in his favour. There it is argued that *Rkpratisakhya* belongs to Sakala as well as Bhaikala Sakha of *Rgveda*, and examples quoted in *Taittiriya Pratisakhya* pp. 184-185 cannot be traced to the extant *Taittiriya Samhita* ; so they must have belonged to extinct Sakha-s of the *Samhita*. The same arguments are advanced by Gopala Yajva in Vaidikabharana as is quoted in Varma (1972) p. 10. See Siddheshwar Varma CSPOIA pp. 20-28 for detailed discussions on chronology. He uses three criteria (1) grammatical terminology, (2) style, and (3) authorities cited.
85. Four commentaries on this *Pratisakhya* are famous : (1) *Parsada Vyakhyan* or *Bhasya* by Uvata written in 11th century AD., This *Bhasya* is included in the copy of *Rkpratisakhya* which we are referring to, (2) *Parsada Vrtti* is intimately related to Uvata's *Bhasya* and has not yet been published, (3) *Vargadvayavrtti* by Visnumitra, which comments on first 10 slokas of *Rkpratisakhya* on which Uvata's commentary is not available. This portion is included in the edition we are referring to. It has been reported that this *Vrtti* on all 18 chapters of *Rkpratisakhya* is available in manuscript form at Deccan College library. This is unpublished, (4) *Bhasya* by Pasupatinatha Sastri. This has been published but is extensively dependent on Uvata's *Bhasya*.
86. Three commentaries on *Taittiriya Pratisakhya* are famous, (1) *Padakrama Sadhana* of Mahiseya is the oldest and smallest ; (2) *Tribhasyararana* of Somayajva. Claims to have utilised commentaries of Vararuci, Atreya and Mahiseya. It has been included in Whitney's edition of *Taittiriya Pratisakhya* which we have used, (3) *Vaidikabharana* of Gopalayajva is the most recent and refutes many assertions and interpretations of Somayajva's commentary. It is also the largest commentary.
87. It has two famous commentaries (1) *Bhasya* of Uvata (11th Cent. AD) also called *Matrmoda*. This is the most ex-

hita; it is an only *Pratisakhyā* which deals with Jatapatha; (3) *Vajasaneyi Pratisakhyā*⁸⁷ ascribed to Katyayana belonged to the Madhyandina *sakha* of the *Sukla Yajurveda*; it uses artificial meaningless technical terms not employed in other *Pratisakhyā-s*; (4) *Saunikiya Caturadhyayi* is a *Pratisakhyā* of *Atharvaveda*; it uniquely employs the device of *gana*⁸⁸ (or group of words to which rules refer with the first word) to formulate rules free from complications; (5) *Rktantra* is ascribed to Sakatayana and is a *Pratisakhyā* related to the Kau-thuma *sakha* of *Atharvaveda*; (6) *Atharvaveda Pratisakhyā*⁸⁹ in another treatise belonging to *Atharvaveda*. It is the smallest *Pratisakhyā* and employ no technical term and cites only one authority, namely Sakalya.

None of these six *Pratisakhyā-s* can be identified with *Par-sada* to which Yaska refers, as the oldest among them, *Rkpratisakhyā*, cities Yaska.⁹⁰ Hence at least in their present form they could not have been codified before Yaska. *Taittiriya Pratisakhyā* seems to be earlier than Patanjali's *Mahabhasya* whose date has been accepted as around 150 B.C.⁹¹ The *Tait-*

tensive commentary and is included in V. K. Varma's edition of *Vajasaneyi Pratisakhyā*; (2) *Padarthaprakasa* of Ananta-bhatta (16th-17th cent. AD). He has also refuted Uvata's interpretations at certain points. Even this commentary is included in V. K. Varma's edition of *Vajasaneyi Pratisakhyā*.

88. Instead of listing the words over which the rule is applicable it only designates the set of these words (*gana*) by the first letter of the set followed by etc., 'adi'. See *Atharva Pratisakhyā* 1.34, 65, 85. This method is extensively put to use by Panini for the sake of brevity in his grammar *Astadhyayi*. *Vajasaneyi Pratisakhyā* 5.38 employs it once but no other *Pratisakhyā* employs it.
89. This is different from Whitney's edition and translation of *Atharvaveda Pratisakhyā* which is *Saunakiya Caturadhyayi*. This is edited by Vishva Bandhu Shastri and published by Punjab University. This has also been published by Dr. Suryakanta.
90. *Rkpratisakhyā* 17.42. 'According to Yaska no one time (*pada*) rc other than 10 syllable one is to be found in *Rgveda*'
91. Whole passage in Patanjali's commentary on Panini 1.2 29-30 dealing with high and low accent has been taken from *Taittiriya Pratisakhyā* 22.9-10. See Siddheswar Varma CSPOIG p. 21.

*tiriya Pratisakhyā*⁹² is later than Panini as it refers to monotonic recitation as opinioned by predecessors and Panini [1.2. 34] gives this opinion. The date of Panini is variously put between 600 B.C. to 400 B.C. Much of knowledge contained in *Pratisakhyā*-s specially related to rules of euphony and phonology is plainly presumed by Panini for constructing his grammar. Absence of any influence of Panini on *Rkpratisakhyā* unlike other *Pratisakhyā*-s is the reason that most scholars believe *Rkpratisakhyā* of Saunaka to be prior to Panini.⁹³ In that case the codification of *Rkpratisakhyā* close to its present form can be dated in between Yaska and Panini, that is, 700 BC-400 BC or 600 BC-500 BC, rest of the *Pratisakhyā*-s being codified later than Panini.

Another important fact to note is that *Rkpratisakhyā*⁹⁴ is a metrical composition unlike prose composition of Yaska's *Nirukta* and Sutra style composition of Panini's *Astadhyayi*. The subject-matter of *Pratisakhyā*-s exclusively deals with how to construct *sanhita-patha* from *padapatha*⁹⁵. Latter *Taittiriya Pratisakhyā* also introduces Jatapatha where Krama (ascend-

92. *Vaidikhabharana* on *Taittiriya Pratisakhyā* 15.9 See Siddheswar Varma CSPOIG p. 14.

93. V. K. Varma RPEP p. 89, Indra PEPSAA p. 3, Siddheswar Varma CSPOIG pp. 21-28.

94. *Rkpratisakhyā* has 529 stanzas and they are in *anustubh*, *tristubh* and *jagati* metres. *Jagati* metre is less compared to the other two, the 11th chapter is wholly composed in *Jagati*. In 4 stanzas 9-9 syllable lines are there, in one 10-10 syllables line and in another 6-6 syllable lines are found.

There exists a recension of *Rkpratisakhyā* in Sutra style but it is decidedly later. In one such manuscript 1067 sutra-s are there. See V. K. Varma RPEP p. 23. Different styles of *Nirukta*, *Astadhyayi* and *Rkpratisakhyā* show that *Rkpratisakhyā* style of metre is older and originated with *Rgveda* itself. Prose style of *Nirukta* originated with *Yajurveda* and the *Astadhyayi* style is contemporaneous with Sutra styles of *Srauta-sutra*-s and could be called ingenious to Panini.

95. It is *Atharvaveda Pratisakhyā* which in its first *sutra* formulates this objective of *Pratisakhyā*-s : 'of the four kinds of words —viz. noun, verb, preposition and particle—the qualities exhibited in euphonic combination and in the state of disconnected vocables are here made the subject of treatment.'

ing with pairs of words) as well as Vikrama (descending with pairs of words) is dealt with. For this purpose *Pratisakhyas* give details of syllablisation (*varnoccaraṇa*), details of correct pronunciation and mistakes in pronunciation, details of words, their phonetic behaviour, details of euphony, details of metres (only *Rkpratisakhya*), details of accent, details of handling *kramapatha* and in general, instruction in teaching the Veda. *Pratisakhyas* do not contain anything other than the phonological knowledge developed for fixing long texts orally. This is most true about *Rkpratisakhya*⁹⁶ which deals exclusively with phonological knowledge needed to retain intact Samhitapatha by its construction from Padapatha and Kramapatha. And it deals with nothing more. It is a committed text.

Composition of *Rkpratisakhya* amounted to fixation of *Rgveda Samhita* in the form which is available to us today. Its composition amounted to scrutinising each and every syllable of *Rksamhita* for details of its composition, accent, pronunciation, word-construction, line-construction, and metre construction. *Rkpratisakhya* itself must have taken generations to be constructed. It quotes 28 authorities⁹⁷ 78 times implying a long heritage of reflections on the subject-matter of the *Pratisakhya*. Many scholarly viewpoints and scholarly opinions and debates of the ancients have been dealt in it. It employs about 281 technical terms⁹⁸ in laying down the phonological knowledge-body. Total number of technical terms⁹⁹ in all the *Prati-*

96. *Rkpratisakhya* has 3 books with six chapters each with every chapter divided into several *varga-s* having generally five stanzas each. First chapter deals with definitions and rules of interpretation of the text : 2nd and 3rd deal with accents and their euphony ; 1st, 6th, 13th and 14th chapters deal with syllables and pronunciation ; 12th chapter deals with words ; 2nd, 4th, 5th, 7th, 8th and 9th chapters deal with euphony ; 16th, 17th and 18th chapters deal with metres ; 10th and 11th chapters deal with *kramapatha*, and 15th chapter deals with general instructions for learning Veda.

97. P. 957 of the edition of *Rkpratisakhya* gives list of names of authorities quoted.

98. 945—956 of *Rkpratisakhya*.

99. According to counting done by Indra PPPSAA p. 6 out of a total of 302 technical terms, *Rkpratisakhya* employs 281, *Taitiriya Pratisakhya* employs 75, *Vajasaneyi Pratisakhya* employs 81.

tisakhya-s are about 302 implying that most of the conceptual apparatus of the subject-matter of *Pratisakhyas* is laid down in *Rkpratisakhyas*. For the developments of extensive knowledge-body, codified in *Rkpratisakhyas*, it must have taken at least two or three centuries which takes back the rudimentary prototype *Rkpratisakhyas* to about 1000 BC—900 BC, i.e. about the time when oral fixation of *Rksamhita* is being achieved. Saunaka, to whom authorship of *Rkpratisakhyas* is ascribed perhaps was an intellectual lineage rather than a person, which was intimately involved with the generation, retention and codification of the phonological knowledge-body. To Saunaka is also ascribed : (1) *Arsanukramani*, concordance of Veda, (2) *Chandonukramani*, concordance of metres, (3) *Devatanukramani*, concordance of deities, (4) *Anuvakanukramani*, indexing method of Samhita, (5) *Suktanukramani*, another indexing scheme of *Rksamhita*, (6) *Rgvidhana* dealing with arrangement of Rgvedic *mantra-s* or stanzas, (7) *Pada-vidhana*, dealing with formation and arrangement of lines in the stanzas of *Rksamhita*, (8) *Brhaddevata*, commentary on Rgvedic deities, (9) *Rgveda Pratisakhyas*, phonology associated with *Rksamhita*, and (10) *Saunaka Smrti*.

The above-mentioned *Anukramani* texts [concordances (1), (2), (3), (4) and (5)] give detailed structure of *Rksamhita* in terms of its divisions into various sections, the Rsi-s with whom stanzas are associated, metres to which various stanzas are classified, deities with which stanzas are associated and the name and number of stanzas, poems (*sukta*), sections (*anuvaka*) and books (*mandala*). With the help of

Caturadhyayi employs 80, and *Rktantra* employs 56. In *Taittiriya Pratisakhyas* 66 terms are same as *Rkprat.* and 9 are new, in *Vajasaneyi Pratisakhyas* 73 are from *Rkpratisakhyas* and 8 are new. *Caturadhyayi* has 71 same and 9 new, *Rktantra* has 51 same and 5 new. Some of these terms are explicitly defined and their properties stated, but some are employed without explicit elaboration on them. *Rkpratisakhyas* defines 245, *Taittiriya Pratisakhyas* defines 58, *Vajasaneyi Pratisakhyas* 68, *Caturadhyayi* 39, *Rktantra* 44, whereas undefined terms used were in *Rhpratisakhyas* 36, in *Taittiriya Pratisakhyas* 17, in *Vajasaneyi Pratisakhyas* 13 in *Caturadhyayi* 41, in *Rktantra* 12 and in *Atharvapratiskhyas* 23.

these the structure of *Rksamhita* was standardised. The Vidhana texts (6) and (7) standardise the text microscopically giving a detailed commentary on stanzas and lines. *Bṛhaddevata* gives a study on Rgvedic deities and also deals with some theoretical aspects of linguistics. This all goes in favour of Saunaka being an intellectual lineage associated with the redaction of the tradition of oral fixation of *Rksamhita* and the knowledge-body of phonetics evolved for the purpose is contained in Saunaka's *Rkpratisakhyā* whose kernel goes back to about 1000-900 BC, though the presently available codification is pre-Panini and post-Yaska.

The *Pratisakhyā*-s of *Yajurveda* also seem to have their kernel before Panini and somewhat before Yaska as they seem to be internally related to the oral fixation of prose literature of *Yajurveda* which must have happened between 1000 BC-800 BC. The knowledge-body of phonetics available in the *Pratisakhyā* is not self-sufficient as they presume without elaboration many phonological facts. For example, *Pratisakhyā*-s do not enumerate sounds but begin the texts with statements like 'the first eight are monophthongs' and 'the next four are diphthongs'.¹⁰⁰ This shows that enumeration of sounds was based on some other text as order of syllables was presumed. Besides, several general aspects of phonetics were not covered by *Pratisakhyā*-s. Today there are extant several treatises dealing with these aspects of phonetics in a general way, these are called *Siksa*-s. In fact Siddheswar Varma claims to have known sixtyfive of them and have personally examined fifty of them.¹⁰¹ But according to his informed opinion, most of them though invariably ascribed to ancient authorship, were codified in their present form in the early medieval period and some as late as 15th century AD.¹⁰² He does not rule out that much

100. *Rkpratisakhyā* 1.1 ff.

101. Siddheswar Varma CSPOIG p. 29.

102. Siddheswar Varma CSPOIG pp. 28-54 deals with chronology of *Siksa* class of literature; the arguments are based on the internal evidences of the present form of *Sikṣas*, which undoubtedly have undergone many changes and permutations. Siddheswar Varma being conscious of this leaves the possibility open that *Sikṣas* could have belonged to much earlier a period somewhat contemporaneous with *Pratisakhyā*-s.

of the knowledge-body contained in *Siksa-s* belonged to the time contemporaneous with the *Pratisakhyas*. His conclusion—after examining several of them from phonological viewpoint—is that ‘many of them (*Siksa-s*) contained a number of very valuable and striking phonetic observations not available in the *Pratisakhyas*.’ *Vajasaneyi-pratisakhyā* (1.29) which begins the section on the letters and syllables opens with a *sutra*—‘now (the aphorisms) as prescribed by *Siksa-s*'.¹⁰⁴ *Taittiriya Upanisad*,¹⁰⁵ *Mundaka Upanisad*¹⁰⁶ and *Panini*¹⁰⁷ speak of phonetics as *Siksa*. *Siksa* traditionally is regarded as one of the six auxilliary disciplines for the study of *Veda-s*, which were : (1) *Vyakarana*, grammar, (2) *Siksa*, instructions on pronunciation and phonetics, (3) *Nirukta*, etymology, (4) *Kalpa*, (5) *Chandas*, metrics, and, (6) *Jyotisa*, astronomy. Though this is certainly a later exegetical arrangement, but it reflects popularity of the term *siksa* for designating discipline of phonetics. Even *Rkpratisakhyā* calls itself a *siksa* which is completer, not easily available, part of the Vedic study and in accordance with ancient teachings.¹⁰⁸ This it says at a place which deals with mistakes in pronunciation of letters. So the term *siksa* designated on the one hand loosely the discipline of phonetics and on the other a particular class of texts.

Siksa class of texts deal with details of letters and syllables, quantity of syllables, details of accents etc. These issues are only summarily dealt with in the *Pratisakhyā* literature. From the study of the knowledge-body presented in *Siksa-s* it can be said that the knowledge-body in *Pratisakhyas* is in a sense dependent on *Siksa*. As *Atharva Pratisakhyā*¹⁰⁹ says, the origination of accent is not seen in *Pada* or in *Samhita*. *Pada* and *Samhita* being the major botheration of *Pratisakhyā* the detailed science of accent, quantity and syllable is left out for

103. Siddheswar Varma CSPOIG p. 28-29.

104. *Vajasaneyi Pratisakhyā* 1.29.

105. *Taittiriya Upanisad* 1.2.

106. *Mundaka Upanisad* 1.2.1 speaks of *Siksa*, *Kalpa* and *Vyakarana* (grammar) as three subjects of learning.

107. *Panini* 4.2.61 enumerates five subjects (1) *krama*, (2) *pada*, (3) *siksa*, (4) *mimamsa* and (5) *saman*.

108. *Rkpratisakhyā* 14.68, 69.

109. *Atharvaveda Pratisakhyā* 4.109.

Siksa. On the other hand, it can be said that *Siksa*-s did not bother about phonetic issues related to *padapatha* etc., in that sense their kernel could even go back to times even before *Pratisakhyā*. Out of 65 *Siksa*-s investigated by Siddheswar Varma it could not be established which one is archaic or contemporaneous with *Pratisakhyā*, but many a times some mention of phonetic facts leads to the conclusion that it must have been observed in the period of early Sanskrit or the period of proto-*Pratisakhyā*.¹¹⁰ So as far as the knowledge-body of phonetics evolved in the oral phase is concerned *Pratisakhyā*-s and *Siksa*-s provide authentic sources. *Rkpratisakhyā* being the oldest and most comprehensive is an ideal source. Other *Pratisakhyā*-s also add significant insights in reconstructing the knowledge-body, but care is needed as these *Pratisakhyā*-s were codified later and some of them in literate period. *Siksa*-s also are sources of many significant insights leading in the reconstruction of the knowledge-body of phonetics. But *Siksa*-s need to be handled carefully and critically because they were codified much later in the literate phase.

Phonetics is not an only aspect of the critical reflection on language caused by an attempt to fix long texts orally in the non-literate phase of history of Indian subcontinent. There was also a tradition of study of meaning of key terms in the *mantra*-s. This tradition of enquiry into the root meaning of words led to development of the theory of etymology. The words were morphologically analysed in terms of roots and suffixes. The meaning of a word was derived from the meaning of the root which itself was made fully clear by analysing verbal use of the root.¹¹¹ This tradition matured in the oral phase and got codified in the *Nirukta*¹¹² of Yaska which is dated 700 BC—500 BC. The *Nirukta*¹¹³ is a commentary on

110. Siddheswar Varma.

111. See Lakshamana Swarup NN pp. 57-71 and Siddheswar Varma's *Etymologies of Yaska*. for the detailed treatment of the theory of etymology employed by Yaska. For its philosophical significance see Navjyoti Singh (1984).

112. For detailed discussion of chronology, see Lakshamana Swarup NM pp. 53-54.

113. There are extant two commentaries on *Nirukta*: (1) commentary of Skandasvami, and (2) commentary of Durgacarya, a thirteenth century A.D. scholar.

the ancient list of key words called *Nighantu*.¹¹⁴ In the commentary the words are morphologically analysed in accordance with the knowledge of phonetics. This work on etymology is an earliest prose literature on an exact science subject. Its prose style makes it invaluable as far as the wealth of material in it on ancient debates and discussions is concerned. Yaska cites thirty-one authorities prior to him in about 123 number of times and out of which thirteen etymologists of great antiquity can be singled out.¹¹⁵ The tradition of etymologists did go back into the thick of oral phase. Even *Brahmana* and other Vedic literature have etymologies scattered here and there.¹¹⁶ But *Nirukta* is an only pivotal authentic source of exact science of etymology in the oral tradition.

As far as the theoretical issues of etymology go, the references from various later grammatical works as well as phonological works like *Pratisakhyā* and *Sikṣa-s* are of help. The *Brhaddevata* has many interesting insights into theoretical issues involved in early debates for recreating ancient theory of etymology.

The two aspects of ancient linguistic efforts, phonology and etymology, in the tail end of Sruti phase gave rise to development of grammar. The development of grammar of Sanskrit culminated in a momentous achievement of Panini, who is dated between 600 BC to 400 BC. Panini's *Astadhyayi* is written in Sutra style where each and every syllable has non-neglectable significance. Order of cryptic rules, *sutra*, and even the order of syllables in it are of significance. The background of the body of knowledge of phonetics was a pre-requisite for the development of *Astadhyayi*. The grammar of Panini

114. It is in five chapters, the first three called Naighantukakanda deal with synonyms, fourth called Nigamakanda deals with homonyms and the last called Daivatakanda deals with deities. The first three chapters have discernible order; first deals with objects and physical things, second with man, and third with abstract qualities.

115. See index given on p. 247 of English translation of *Nirukta*.

116. Fatah Singh, *The Vedic Etymology. A critical evaluation of the science of Etymology as found in Vedic literature*. Sanskrita Sadan-kota 1952, gives listing of etymologies of 833 words attempted in the Vedic literature.

has a central body of about 4000 rules and has several appendices. These appendices are definitely drawn from the past. The history of roots or *dhatupatha* is certainly a legacy of tradition of etymology. Similarly, *unadipatha* giving lists of affixes played an important role in the constitution of grammar. Several formal and logical devices were developed by Panini to make possible writing of a non-ambiguous grammar of Sanskrit both Vaidika as well as Laukika. Many of these devices were derived from early phonetical literature. Even the appendix, *ganapatha* (list of words undergoing similar grammatical transformation) was modelled on the listing of words given in *Pratisakhyā* and *Sikṣa* literature in the body of rules.

5.0. CONCLUSION

In conclusion we would say that the knowledge-body of linguistics which got developed in Sruti phase had several facets. The three distinct facets were the following : (1) Studies of incantation : This led to development of various dimensions of phonology. These studies were closely related to standardisation and fixing of incantations and recitation. *Pratisakhyā* class of literature and *Sikṣa* class of literature are useful in reconstructing phonological knowledge-body. *Rkpratisakhyā* (600-500 BC) of Saunaka is the most significant and important text for the study of this aspect ; (2) Studies in meaning : These studies though evolved in the context of meanings of *mantra*-s and the key words were not related to the incantation aspect directly. These studies banked on Vedic as well as ordinary language. Discovery of the root and affix morphology of the words led to establishment of exact science of etymology. Yaska's *Nirukta* (700-500 B.C.), a commentary on *Nighantu* (an ancient list of words) is a central source for the reconstruction of the knowledge-body of etymology, semantics and associated philology. *Brhaddevata* (800 B.C.—400B.C.) of Saunaka also helps in the reconstruction ; (3) Studies in syntax : This direction of inquiry developed towards the end of Sruti phase and presupposed the above two directions of inquiry. Or, in other words, it represented development over the shortcoming of the other two traditions of inquiry. The development of the grammar of Sanskrit distanced linguistic studies from the *Samhitā*-s and incantation. For

grammar ordinary usage as well as Vedic textual usage were significant. Panini's *Astadhyayi* (600 B.C.-400 B.C.) foreshadowed and eclipsed all earlier grammatical inquiries and provides with complete knowledge-body of the grammar of Sanskrit. The three aspects of the knowledge-body cannot be dealt in the space of the chapter.

There is a need to re-create the most fascinating aspect of the knowledge system of linguistics and cover significant ancient debates which punctuated the actual development of the knowledge system.